

**TITLE: HARDWARE EFFICIENT RF TRANSCEIVER I/Q IMBALANCE
COMPENSATION BASED UPON TAYLOR APPROXIMATION**

ABSTRACT OF THE INVENTION

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Radio transceiver circuitry includes I/Q imbalance compensation logic within at least one of a digital modulator or a digital demodulator, depending upon whether the I/Q imbalance compensation block is compensating for I/Q imbalance in a transmit path or in a receive path. For a transmitter, a digital processor includes a baseband processor that produces transmit data (digital data) for transmission to a digital modulator that includes an I/Q imbalance compensation logic. The digital modulator, which may modulate in any known modulation scheme, produces in-phase and quadrature phase components that have been pre-compensated for I/Q imbalance that is introduced by downstream analog circuitry in the transmit path. In at least one embodiment of the invention, a “steepest descent” algorithm for finding optimal values of I/Q imbalance compensation parameters based upon a small number of image rejection measurements are used.

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